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Evaluation of Foliar Fungicide Efficacy on Sorghum in Nebraska, 2011

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SORGHUM (*Sorghum bicolor* (L.) Moench 'DKS 36-06')
Gray leaf spot; *Cercospora sorghi*

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A foliar fungicide efficacy trial was conducted at the University of Nebraska-Lincoln South Central Agricultural Laboratory near Clay Center, NE. DeKalb sorghum hybrid DKS 36-06 was planted on 23 May in 30-in. rows with a target population of approximately 120,000 plants/A. The trial area was disked with soybean as the previous year's crop. Four treatments and a non-treated control were replicated six times in a randomized complete block design. Each plot was four rows (10 ft) wide by 40 ft in length. Foliar fungicides were applied with a modified high-clearance sprayer. The 10 ft spray boom consisted of six nozzles (TeeJet XR11002) spaced 20-in. apart and 18-in. above the canopy. Each treatment was applied at 40 psi traveling at 3.0 mph resulting in a 20 gal/A application volume. Foliar fungicides were applied on 26 Jul at the onset of flowering. Gray leaf spot (GLS) was the only prevalent foliar disease in this trial. Disease severity was visually assessed by estimating percent leaf area covered with lesions over the entire plot at 0, 14, 28 and 42 days after treatment application and these data were used to calculate area under the disease progress curve (AUDPC). Grain was mechanically harvested with a two-row research combine on 7 Nov. The ends of plots were trimmed prior to harvest and the harvested area of each plot was measured following harvest and used to calculate yield. All assessments (disease severity and yield) were done in the two center rows of each plot. Monthly rainfall and temperature readings were relatively normal during the growing season. Supplemental water was added as needed by an overhead sprinkler linear irrigation system.

This trial was under relatively low disease pressure throughout the growing season. Gray leaf spot severity levels were very low throughout the trial's duration with Quilt 1.66 SC, 14 fl oz/A having the highest observed rating at 0.8%. Utilizing all disease ratings in the AUDPC calculation indicated all fungicide treatments reduced GLS severity compared to the non-treated control. There were significant differences in GLS AUDPC among treatments. The non-treated control exhibited the largest GLS AUDPC value and Headline 2.09 EC, 6 fl oz/A exhibited the lowest value. Despite the reduction in GLS as measured by AUPDC, there were no significant differences in yield, 1,000-count kernel weight or grain moisture among all treatments. The lack of significant differences may have been primarily due to the low disease severity.

Treatment and Rate/A	GLS AUDPC[z]	1000 Kernel Weight (oz)	Grain Moisture (%)	Dry Yield (bu/A)[y]
Non-Treated Control……..……..……	6.9 a[x]	0.71	14.3	132.5
Headline 2.09 EC, 6 fl oz + NIS 0.25% V/V…….……...…….....	1.2 b	0.72	14.1	135.2
Quadris 2.08 SC, 6 fl oz + NIS 0.25% V/V……..…..…...…	2.3 b	0.72	14.2	134.4
Quilt 1.66 SC, 14 fl oz + NIS 0.25% V/V……...…….….	6.7 a	0.72	14.2	134.8
Quilt Xcel 2.2 SE, 10.5 fl oz + NIS 0.25% V/V…….....	2.9 b	0.71	14.3	134.3
Coefficient of Variation (%)	73.8	9.7	2.1	3.7

[z]Area under the disease progress curve.
[y]Yield calculations adjusted to a moisture content of 14.0%.
[x]Data followed by the same letter or without letters within a column are not statistically different (P > 0.05) according to the Waller-Duncan k-ratio t Test.